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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,079	09/09/2003	David Alexander	IMMR023/03US	9176

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EXAMINER	
SOTOMAYOR, JOHN	
ART UNIT	**PAPER NUMBER**
3714	

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/657,079	ALEXANDER ET AL.	
	Examiner	Art Unit	
	John L Sotomayor	3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-24,26,27,30 and 31* is/are rejected.

7)☒ Claim(s) *25,28,29,32 and 33* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *071304*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the amendment filed January 9, 2004, claims 1-11 are canceled and claims 12-33 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 12-14, 19, 26-27 and 30-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Rosenberg et al (US 5,805,140).

Regarding claim 12, Rosenberg et al discloses an apparatus with a capture mechanism configured to engage a peripheral device (Col 4, lines 47-56), a sensing assembly configured to detect movement of the peripheral device when engaged by the capture mechanism (Col 4, lines

36-44), a dimension-adjusting mechanism configured to move parallel to a direction of movement of the peripheral device when engaged by the capture mechanism (Col 4, lines 30-37), and an actuator configured to apply force feedback to the peripheral device when engaged by the capture mechanism, the force feedback being based on control signals associated with the detected movement of the peripheral device (Col 5, lines 20-41).

Regarding claim 13, Rosenberg et al discloses an apparatus wherein the dimension-adjustment mechanism is configured to automatically adjust dimensions of a coupling mechanism in response to a movement of the peripheral device, the coupling mechanism being configured to couple the peripheral device when engaged by the capture mechanism to the sensor assembly (Col 6, lines 25-34).

Regarding claims 14 and 27, Rosenberg et al discloses an apparatus with a dimension-adjusting capture mechanism further including an outer tubular-member and an inner-tubular member at least partially disposed within the outer-tubular member for adjusting the capture mechanism and the inner tubular-member being coupled to the sensing assembly at a distal end of the inner tubular-member (Fig 6).

Regarding claim 19, Rosenberg et al discloses a method engaging a capture mechanism configured to engage a peripheral device (Col 4, lines 47-56), a sensing assembly detecting movement of the peripheral device when engaged by the capture mechanism (Col 4, lines 36-44), adjusting a dimension of a coupling mechanism in response to a movement of the peripheral device when engaged by the capture mechanism (Col 4, lines 30-37), and an actuator applying force feedback to the peripheral device when engaged by the capture mechanism, the force

feedback being based on control signals associated with the detected movement of the peripheral device (Col 5, lines 20-41).

Regarding claim 26, Rosenberg et al discloses an apparatus with a capture mechanism configured to engage a peripheral device (Col 4, lines 47-56), a sensing assembly configured to detect movement of the peripheral device when engaged by the capture mechanism (Col 4, lines 36-44), a dimension-adjusting mechanism configured to move parallel to a direction of movement of the peripheral device when engaged by the capture mechanism, the dimension-adjustment mechanism being configured to support the peripheral device when engaged by the capture mechanism (Col 4, lines 30-37 and fig 6), and an actuator configured to apply force feedback to the peripheral device when engaged by the capture mechanism, the force feedback being based on control signals associated with the detected movement of the peripheral device (Col 5, lines 20-41).

Regarding claim 30, Rosenberg et al discloses a method engaging a capture mechanism configured to engage a peripheral device (Col 4, lines 47-56), a sensing assembly detecting movement of the peripheral device when engaged by the capture mechanism (Col 4, lines 36-44), adjusting a dimension of a coupling mechanism in response to a movement of the peripheral device when engaged by the capture mechanism the dimension-adjustment mechanism being configured to support the peripheral device when engaged by the capture mechanism (Col 4, lines 30-37 and fig 6), and an actuator applying force feedback to the peripheral device when engaged by the capture mechanism, the force feedback being based on control signals associated with the detected movement of the peripheral device (Col 5, lines 20-41).

Regarding claim 31, Rosenberg et al discloses a method wherein a dimension-adjusting capture mechanism further includes an outer tubular-member and an inner-tubular member at least partially disposed within an outer-tubular member for adjusting the capture mechanism and the inner tubular-member being coupled to the sensing assembly at a distal end of the inner tubular-member (Fig 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 15-18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg et al in view of Bailey (US 6,062,865).

Regarding claims 15-18, Rosenberg et al does not specifically disclose an apparatus comprising a first and second pulley, a belt disposed about the first and the second pulley, a trolley configured to move along a guide rail in response to a corresponding movement of the

peripheral device when engaged by the capture mechanism (claims 15-18), a rotation-motion sensor to measure rotation of the peripheral device and a translational-motion device to measure translational-motion when engaged by the capture mechanism (claims 16-18), the translational-motion sensor being coupled to the first pulley (claim 17), or an actuator coupled to a second pulley with the actuator being configured to apply force-feedback by controlling a rotation of the second pulley (claim 18). However, Bailey teaches an apparatus comprising a first and second pulley, a belt disposed about the first and the second pulley, a trolley configured to move along a guide rail in response to a corresponding movement of the peripheral device when engaged by the capture mechanism (Fig 2), a rotation-motion sensor to measure rotation of the peripheral device and a translational-motion device to measure translational-motion when engaged by the capture mechanism (Fig 2), the translational-motion sensor being coupled to the first pulley (Fig 3), or an actuator coupled to a second pulley with the actuator being configured to apply force-feedback by controlling a rotation of the second pulley (Figs 2 and 3). Therefore, it would have been obvious to one of ordinary skill in the art to provide an apparatus with a capture mechanism configured to engage a peripheral device with a sensing assembly configured to detect movement of the peripheral device when engaged by the capture mechanism as disclosed by Rosenberg et al with a first and second pulley, a belt disposed about the first and the second pulley, a trolley configured to move along a guide rail in response to a corresponding movement of the peripheral device when engaged by the capture mechanism, a rotation-motion sensor to measure rotation of the peripheral device and a translational-motion device to measure translational-motion when engaged by the capture mechanism, the translational-motion sensor being coupled to the first pulley, or an actuator coupled to a second pulley with the actuator being configured to apply

force-feedback by controlling a rotation of the second pulley for the purposes of providing a training simulator with all elements of actual operating conditions without requiring a live patient.

Regarding claim 20, Rosenberg et al discloses a method for sensing and using force-feedback in a medical training device comprising sensing a rotational-motion of a peripheral device and sensing a translation-motion of a peripheral device (Fig 3).

Regarding claim 21, Rosenberg et al discloses a method for sensing and using force-feedback in a medical training device comprising sensing a rotational-motion of a peripheral device and sensing a translation-motion of a peripheral device. Rosenberg et al does not specifically disclose that the method includes sensing the motion of a trolley that is coupled to a peripheral device. However, Bailey teaches sensing the motion of a trolley coupled to a peripheral device (Fig 2). Therefore, it would have been obvious to one of ordinary skill in the art to provide a method for sensing and using force-feedback in a medical training device comprising sensing a rotational-motion of a peripheral device and sensing a translation-motion of a peripheral device as disclosed by Rosenberg et al with a means for sensing the motion of a trolley coupled to a peripheral device as taught by Bailey for the purposes of providing uniform feedback to a user of the system.

Regarding claim 22, Rosenberg et al discloses a method for sensing and using force-feedback in a medical training device. Rosenberg et al does not specifically disclose applying force-feedback to a peripheral device by controlling a rotation of a pulley. However, Bailey teaches a method for applying force-feedback to a peripheral device by controlling the rotation of a pulley (Fig 3). Therefore, it would have been obvious to one of ordinary skill in the art to

provide a method for sensing and using force-feedback in a medical training device as disclosed by Rosenberg et al with means for applying force-feedback to a peripheral device by controlling the rotation of a pulley as taught by Bailey for the purposes of increased accuracy in the application of force when operating the training device.

Regarding claim 23, Rosenberg et al discloses a method wherein adjusting a dimension of the capture mechanism includes increasing a cross-section of the capture mechanism such that the peripheral device may be removed from the capture mechanism (Fig 4).

Regarding claim 24, Rosenberg et al discloses a medical simulation device with a method for a coupling mechanism to engage a peripheral device. Rosenberg et al does not specifically disclose moving an inner tubular-member relative to an outer tubular-member in response to the movement of a peripheral device when engaged by the capture mechanism. However, Bailey teaches a method for moving an inner tubular-member relative to an outer tubular-member in response to the movement of a peripheral device when engaged by the capture mechanism (Col 5, lines 33-47 and Figs 2 and 3). Therefore, it would have been obvious to one of ordinary skill in the art to provide a medical simulation device with a method for a coupling mechanism to engage a peripheral device as disclosed by Rosenberg et al with means for moving an inner tubular-member relative to an outer tubular-member in response to the movement of a peripheral device when engaged by the capture mechanism as taught by Bailey for the purposes of translating movement requests through the capture mechanism and receiving force-feedback in return to properly simulate the use of peripheral devices during a surgical procedure.

Allowable Subject Matter

Claims 25,28,29,32 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach or suggest a medical simulation device and method in which a bellows having a plurality of leaves is configured to support a peripheral device and used to assist in the stabilization of said peripheral device during movement of the peripheral device.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jacobus et al (US 5,769,640) for a discussion of simulating medical procedures including reality and control of peripheral devices associated with said medical procedures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L Sotomayor whose telephone number is 703-305-4558. The examiner can normally be reached on 6:30-4:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on 703-308-1745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jls
July 30, 2004

JESSICA HARRISON
PRIMARY EXAMINER